

**In the Claims:**

1. (Currently Amended) A method comprising:  
providing a line card having:
  - a digital signal processor for manipulating data received by the line card;
  - a transmit channel and a receive channel coupled to a combined transmit and receive channel, the combined transmit and receive channel for transmitting and receiving communications with the line card;
  - wherein the transmit channel comprises a first amplifier for amplifying a signal in the transmit signal and the receive channel comprises a second amplifier for amplifying a signal in the receive channel;
  - one or more electrical components in the combined channel;
  - a switch disposed in the combined channel;terminating the combined channel with a termination network, the termination network having a desired impedance;  
transmitting a test signal through at least a portion of the transmit channel toward the combined channel;  
determining whether any components in the transmit channel or receive channel are malfunctioning by detecting, by the digital signal processor, any resulting signal in the receive channel;  
wherein the desired impedance is approximately equal to a characteristic impedance of a communication line conventionally used with the line card; and  
wherein the characteristic impedance is 100 ohms.
2. (Original) The method of Claim 1, wherein the transmit channel and the receive channel are coupled to the combined channel by a hybrid.
3. (Original) The method of Claim 1, wherein the one or more electrical components comprises a transformer.
4. (Original) The method of Claim 1, wherein the one or more electrical components comprises a connector.

5-6. (Cancelled)

7. (Original) The method of Claim 1, wherein transmitting a test signal through at least a portion of the transmit channel toward the combined channel further comprises transmitting a test signal to the termination network.

8. (Original) The method of Claim 7, wherein detecting, by the digital signal processor, any resulting signal in the receive channel comprises detecting a signal reflected by the termination network.

9. (Original) The method of Claim 1, wherein detecting, by digital signal processor, any resulting signal in the receive channel comprising detecting no reflected signal from the termination network.

10. (Original) The method of Claim 1, wherein detecting, by digital signal processor, any resulting signal in the receive channel comprising detecting a signal reflected by one of the one or more components.

11. (Original) The method of Claim 1, and further comprising filtering, within the transmit channel, the transmitted signal.

12. (Original) The method of Claim 1, and further comprising filtering, within the receive channel, any reflected signal.

13. (Previously presented) The method of Claim 1, and further comprising terminating, by the switch, any test signal in the combined channel and then again detecting, by digital signal processor, any resulting signal in the receive channel.

14. (Original) The method of Claim 1, and further comprising comparing the detected signal to an expected signal.

15. (Original) The method of Claim 1, wherein the termination network is formed on the line card.

16. (Original) The method of Claim 1, wherein the termination network is formed external to the line card.

17-44. (Cancelled)

45. (Currently Amended) A method for self-testing a portion of a line card having a transmit channel and a receive channel coupled to a combined transmit and receive channel and also having a digital signal processor for manipulating data received by the line card, the method comprising:

transmitting a test signal through at least a portion of the transmit channel toward the combined channel;

determining whether any components in the transmit channel or receive channel are malfunctioning by detecting, by the digital signal processor, any resulting signal in the receive channel to~~determine whether any components in the transmit channel or receive channel are malfunctioning; and~~

introducing a reflection in the combined ~~channel;~~ and channel.

~~terminating the combined channel with a termination circuit, the termination circuit having an impedance and comprising one or more resistors and one or more capacitors.~~

46. (Previously Presented) The method of Claim 45, and further comprising detecting, by the digital signal processor, any resulting signal in the receive channel to determine whether any components in the combined channel are malfunctioning.

47. (Previously Presented) The method of Claim 45, and further comprising comparing the detected signal to an expected detected signal.

48. (Previously Presented) The method of Claim 47, further comprising filtering the test signal within the portion of the transmit channel.

49. (Previously Presented) The method of Claim 48, wherein comparing the detected signal comprises comparing the detected signal to the filtered test signal.

50. (Previously Presented) The method of Claim 45, wherein the impedance of the termination circuit is approximately the characteristic impedance of an input line to the line card.

51. (Previously Presented) The method of Claim 45, and further comprising introducing an open in the combined channel.

52. (Previously Presented) The method of Claim 45, and further comprising providing a switch in the combined channel before the termination circuit.

53. (Previously Presented) The method of Claim 52, and further comprising selectively opening or closing the switch to test the one or more of the components.

54. (Previously Presented) The method of Claim 45, and further comprising shorting the combined channel to itself.

55. (Previously Presented) A method for self-testing a portion of a line card having a digital signal processor for manipulating data received by the line card, a transmit channel, and receive channel, and a combined transmit and receive channel coupled to the transmit and receive channels, the method comprising:

terminating the combined channel with a termination circuit, the termination circuit having an impedance and comprising one or more resistors and one or more capacitors;

transmitting a test signal through a portion of the transmit channel toward the combined channel;

selectively opening or closing a switch within the combined channel;

detecting, by the digital signal processor, any resulting signal in the receive channel after opening or closing of the switch to determine whether any components in the transmit channel or receive channel are malfunctioning; and

wherein the receive channel comprises one or more filters and a filter bypass, and further comprising selecting, by a second switch, a path for the resulting signal through either one of the filters or the filter bypass.

56. (Previously Presented) The method of Claim 55, and further comprising detecting, by the digital signal processor, any resulting signal in the receive channel after opening or closing of the switch to determine whether any components in the combined channel are malfunctioning.

57. (Previously Presented) The method of Claim 55, wherein the transmit channel comprises a filter and a filter bypass, and further comprising selecting, by a third switch, a path for the test signal.

58. (Previously Presented) The method of Claim 55, and further comprising comparing the detected signal to the test signal.

59. (Previously Presented) The method of Claim 55, and further comprising comparing the detected signal to an expected detected signal.

60. (Currently Amended) A system for allowing self-test of a line card comprising:

a line card comprising:

a transmit channel and a receive channel coupled to a combined transmit and receive channel, the combined transmit and receive channel operable to transmit and receive communications with the line card;

a termination circuit operable to terminate the combined channel; ~~channel, the termination circuit having an impedance and comprising one or more resistors and one or more capacitors; and~~

a switch on the line card operable to selectively couple the termination circuit to the combined channel; and

a digital signal processor formed on the line card and operable to manipulate data formed on the line card, the digital signal processor coupled to the receive channel and operable to determine whether any components in the transmit channel or receive channel are malfunctioning by detecting ~~deteet~~ any reflection of a signal transmitted through the transmit channel toward the combined channel; and

wherein the transmit channel comprises a filter and an associated switch operable to bypass the filter.

61. (Previously Presented) The system of Claim 60, wherein the impedance of the termination circuit is approximately equal to a characteristic impedance associated with a telephone line.

62. (Previously Presented) The system of Claim 60, wherein the combined channel comprises one or more electrical components to be tested.

63. (Previously Presented) The system of Claim 62, wherein the one or more electrical components comprises a transformer.

64. (Previously Presented) The system of Claim 60, wherein the transmit channel and receive channel are coupled to combined channel by a hybrid.

65. (Currently Amended) A method for self-testing a portion of a line card having a digital signal processor for manipulating data received by the line card, a transmit channel, and receive channel, and a combined transmit and receive channel coupled to the transmit and receive channels, the method comprising:

terminating the combined channel with a termination circuit; ~~circuit, the termination circuit having an impedance and comprising one or more resistors and one or more capacitors;~~

transmitting a test signal through a portion of the transmit channel toward the combined channel;

selectively opening or closing a switch within the combined channel;

determining whether any components in the transmit channel or receive channel are malfunctioning by detecting, by the digital signal processor, any resulting signal in the receive channel after opening or closing of the switch ~~to determine whether any components in the transmit channel, receive channel, or combined channel are malfunctioning;~~ and

wherein the transmit channel comprises a filter and a filter bypass, and further comprising selecting, by a second switch, a path for the test signal.



66. (Currently Amended) A system for allowing self-test of a line card comprising:

a line card comprising:

a transmit channel and a receive channel coupled to a combined transmit and receive channel, the combined transmit and receive channel operable to transmit and receive communications with the line card;

a termination circuit operable to terminate the combined channel; ~~channel~~, the ~~termination circuit having an impedance and comprising one or more resistors and one or more capacitors~~; and

a switch on the line card operable to selectively couple the termination circuit to the combined channel;

a digital signal processor formed on the line card and operable to manipulate data formed on the line card, the digital signal processor coupled to the receive channel and operable to determine whether any components in the transmit channel or receive channel are malfunctioning by detecting ~~deteet~~ any reflection of a signal transmitted through the transmit channel toward the combined channel; and

wherein the receive channel comprises one or more filters and an associated switch for selecting either one of the one or more filters or selecting bypass of the one or more filters.

67. (New) The method of Claim 1, further comprising determining which, if any, of the components in the transmit channel or receive channel are malfunctioning by detecting, by the digital signal processor, the any resulting signal in the receive channel.

68. (New) The method of Claim 45, further comprising determining which, if any, of the components in the transmit channel or receive channel are malfunctioning by detecting, by the digital signal processor, the any resulting signal in the receive channel.

69. (New) The method of Claim 55, further comprising determining which, if any, of the components in the transmit channel or receive channel are malfunctioning by detecting, by the digital signal processor, the any resulting signal in the receive channel after the opening or closing of the switch.

70. (New) The system of Claim 60, wherein the digital signal processor is further operable to determine which, if any, of the components in the transmit channel or receive channel are malfunctioning by detecting the any reflection of the signal transmitted through the transmit channel toward the combined channel.

71. (New) The method of Claim 65, further comprising determining which, if any, of the components in the transmit channel or receive channel are malfunctioning by detecting, by the digital signal processor, the any resulting signal in the receive channel after the opening or closing of the switch.

72. (New) The system of Claim 66, wherein the digital signal processor is further operable to determine which, if any, of the components in the transmit channel or receive channel are malfunctioning by detecting the any reflection of the signal transmitted through the transmit channel toward the combined channel.